Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A process for the fluidized catalytic cracking of a hydrocarbon feedstock comprising:

passing a hydrocarbon feedstock and solid catalyst particles into a reaction conduit to produce a mixture of solid catalyst particles and gaseous fluids;

inducing said mixture of said catalyst particles and gaseous fluids to swirl to decrease the catalyst particle concentration and increase the gaseous fluids concentration in said mixture;

transporting said mixture through a gas recovery conduit;

passing said mixture from said gas recovery conduit to at least one cyclone through a cyclone inlet having a short side and a long side, said short side being substantially tangential to a cross-sectional profile of said gas recovery conduit and said mixture passing from said gas recovery conduit into said at least one cyclone while swirling toward said long side of said cyclone inlet;

inducing said mixture in said cyclone to swirl to further decrease the catalyst particle concentration and further increase the gaseous fluids concentration in said mixture.

Claim 2 (original): The process of claim 1 wherein said mixture exits said reaction conduit through a swirl arm to induce swirling.

Claim 3 (original): The process of claim 1 wherein said cyclone directly communicates with said gas recovery conduit.

Claim 4 (original): The process of claim 1 wherein said mixture exits from said reaction conduit into a separation vessel and said gas recovery conduit directly communicates with said separation vessel.

Claim 5 (original): The process of claim 1 further including depositing catalyst particles removed from said mixture in said cyclone into a stripping zone, contacting said catalyst particles with a stripping gas in said stripping zone, recovering stripped catalyst particles from said stripping zone and collecting gaseous fluids from said stripping zone.

Claim 6 (currently amended): The process of claim 1 wherein said mixture continues to swirl ~~in said first angular direction~~ while it is transported to the cyclone.

Claim 7 (currently amended): An apparatus for the fluidized catalytic cracking of a hydrocarbon feedstock comprising:

a reaction conduit for contacting a hydrocarbon feedstock and solid catalyst particles to produce a mixture of solid catalyst particles and gaseous fluids;

a gas recovery conduit in communication with said reaction conduit;

a cyclone in communication with said gas recovery conduit, said cyclone having an inlet comprising a short side and a long side, said short side being substantially tangential to a cross sectional profile of said gas recovery conduit and said short side and said long side being parallel to each other.

Claim 8 (original): The apparatus of claim 7 wherein said reaction conduit has a swirl exit configured to induce the solid catalyst particles and gaseous fluids to swirl.

Claim 9 (original): The apparatus of claim 8 wherein said swirl exit comprises a tubular swirl arm with one end connective with the reaction conduit and an opening at the opposite end.

Claim 10 (original): The apparatus of claim 9 wherein said swirl arm curves about an axis that is parallel to said reaction conduit.

Claim 11 (original): The apparatus of claim 9 wherein the swirl exit is positioned in a separation vessel.

Claim 12 (original): The apparatus of claim 9 wherein a gas recovery conduit communicates the swirl exit of the reaction conduit with the cyclone.

Claim 13 (currently amended): The apparatus of claim 8 wherein said cyclone includes a centrally disposed gas outlet, and the swirl exit of the gas recovery conduit induces a first angular direction of swirl that is primarily toward said long side of said cyclone inlet. ~~the cyclone.~~

Claim 14 (original): The apparatus of claim 8 which is a part of an entire fluidized catalytic cracking unit.

Claim 15 (currently amended): An apparatus for the fluidized catalytic cracking of a hydrocarbon feedstock comprising:

a reaction conduit for contacting a hydrocarbon feedstock and solid catalyst particles to produce a mixture of solid catalyst particles and gaseous fluids;

a gas recovery conduit in communication with said reaction conduit for transporting said mixture; and

a cyclone in communication with said gas recovery conduit, said cyclone having a curved outer wall and an inlet comprising a first side and a second side, a first side of said inlet being contiguous with said curved outer wall and not

substantially tangential to a cross sectional profile of said gas recovery conduit and said second side of said inlet being substantially tangential to a cross sectional profile of said gas recovery conduit.

Claim 16 (original): The apparatus of claim 15 wherein said reaction conduit has a swirl exit configured to induce the solid catalyst particles and gaseous fluids to swirl.

Claim 17 (original): The apparatus of claim 16 wherein said swirl arm curves in an angular orientation counter to the angular orientation in which said outer wall of the cyclone curves.

Claim 18 (original): The apparatus of claim 16 wherein said swirl arm curves about an axis that is parallel to said reaction conduit.

Claim 19 (original): The apparatus of claim 16 wherein the swirl exit end is positioned in a separation vessel.

Claim 20 (original): The apparatus of claim 16 which is a part of an entire fluidized catalytic cracking unit.